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Indian and Northern Affairs
Affaires indiennes et du Nord

Communiqué

NOTES FOR A SPEECH BY

J. HUGH FAULKNER

MINISTER, INDIAN AFFAIRS AND NORTHERN DEVELOPMENT

OTTAWA, CANADA

APRIL 27, 1978

BOREAL INSTITUTE FOR NORTHERN STUDIES
MAY

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AS MOST OF YOU KNOW, NEW PROSPECTING PERMITS AND APPLICATIONS FOR LAND USE NEAR THE COMMUNITY OF BAKER LAKE IN THE NORTHWEST TERRITORIES WERE DEFERRED FOR THE PAST YEAR TO ALLOW TIME TO STUDY THE IMPACT OF INCREASED EXPLORATION ON THE CARIBOU AND OTHER WILDLIFE.

THE STUDY, BY INTERDISCIPLINARY SYSTEMS OF WINNIPEG, WAS COMPLETED RECENTLY. FROM THIS STUDY AND CONSULTATIONS WITH THE PEOPLE OF BAKER LAKE, I HAVE APPROVED A LAND USE POLICY DEVELOPED BY SPECIALISTS IN MY DEPARTMENT. I AM CONFIDENT THIS POLICY WILL PROTECT THE CARIBOU AND OTHER WILDLIFE FROM HARM AS A RESULT OF EXPLORATION ACTIVITIES.

I WANT TO HIGHLIGHT THE FACT THAT THIS IS THE FIRST TIME THE PRINCIPLE OF PREFERENTIAL LAND USE IN A GIVEN AREA FOR A SPECIFIC PURPOSE WILL BE APPLIED IN THE NORTH.

THIS PROTECTION IS BASED ON THE CONCEPT OF SPECIAL LAND MANAGEMENT ZONES AND VERY RIGID TERMS AND CONDITIONS ON ALL LAND USE ACTIVITY. IT WILL PREVENT ALL INDUSTRIAL OR EXPLORATION ACTIVITY IN AREAS AT TIMES THAT ARE CRITICAL TO CARIBOU.

THIS IS WHAT I MEANT WHEN I SAID ON BEING APPOINTED TO THIS PORTFOLIO, AND AT THE OPENING OF THE LATEST NWT COUNCIL SESSION, THAT WE MUST MAINTAIN A BALANCE BETWEEN NON-RENEWABLE AND RENEWABLE RESOURCE USE AND THE PROTECTION OF TRADITIONAL PURSUITS.

THE INTRINSIC WORTH OF THE CARIBOU AND THE ECONOMIC AND CULTURAL VALUE OF THE HERDS TO THE PEOPLE OF BAKER LAKE IS VERY GREAT. PROTECTION OF THIS RESOURCE MUST TAKE PRECEDENCE - WHILE THE IMPORTANT MINERAL EXPLORATION CAN CONTINUE.

PAM 07dL Faulkner,
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WE ARE VERY PLEASED THAT THE COURT DECISION EARLIER THIS WEEK DID NOT CONFLICT IN ANY WAY WITH WHAT WE PROPOSED TO DO.

ACCORDINGLY WE ARE NOW PROCEEDING TO ISSUE PROSPECTING PERMITS AND LAND USE PERMITS CONSISTENT WITH OUR POLICY.

THIS STUDY, THE CONCLUSIONS AND THE EXPERIENCE WE HAVE GAINED, INDICATE STRONGLY TO ME THAT WE REALLY NEED TO IMPROVE COMMUNICATIONS BETWEEN THE PEOPLE OF BAKER LAKE, THE GOVERNMENT AND THE MINING INDUSTRY.

WE ARE ANXIOUS TO BEGIN DETAILED DISCUSSION WITH THE PEOPLE OF BAKER LAKE ON THE NATURE OF THE LAND MANAGEMENT ZONES AND THE DEVELOPMENT OF REGULATIONS TO APPLY TO THE ZONES.

IN ADDITION, WE INTEND TO DEVELOP AN EFFECTIVE MONITORING PROGRAM IN COLLABORATION WITH THE GOVERNMENT OF THE NWT, THE CANADIAN WILDLIFE SERVICE AND THE INUIT TO ENSURE LAND USE ACTIVITIES DON'T INTERFERE WITH THE CARIBOU AND TO ENABLE BETTER DEFINITION OF THE BOUNDARIES OF THE CARIBOU CRITICAL AREAS. THE INUIT WILL BE INVITED TO HELP DESIGN AND PARTICIPATE IN THE MONITORING PROCESS.

THE PARTICIPATION OF THE INUIT PEOPLE IN THIS MONITORING PROGRAM SHOULD HELP REASSURE THEM OF THE ADEQUACY OF THE CONTROLS AND THAT THE CONTROLS ARE BEING ENFORCED. IN ADDITION, IT CAN PROVIDE EXPERIENCE TO THE INUIT WHICH WILL HELP THEM PARTICIPATE EFFECTIVELY IN THE DEVELOPMENT OF THE SPECIAL LAND MANAGEMENT ZONES.

BECAUSE THE ESTABLISHMENT OF THE LAND MANAGEMENT ZONES AND THE IMPLEMENTATION OF THE CONTROLS WILL TAKE SOME TIME, WE INTEND TO PUT IN

PLACE THE NECESSARY RESTRICTIONS FOR THE 1978 EXPLORATION SEASON BY SPECIAL TERMS AND CONDITIONS IN LAND USE PERMITS ISSUED UNDER THE TERRITORIAL LAND USE REGULATIONS. THIS WILL ENSURE THE ENVIRONMENTAL CONDITIONS SET OUT IN THE POLICY OF MY DEPARTMENT AND CORROBORATED BY THE FEDERAL COURT ORDER, ARE IMPLEMENTED NOT ONLY FOR THE BAKER LAKE AREA BUT FOR ALL THE CRITICAL RANGE OF BOTH CARIBOU HERDS IN THE KEEWATIN.

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EXECUTIVE SUMMARY

EFFECTS OF EXPLORATION AND DEVELOPMENT IN THE BAKER LAKE AREA
VOLUME 1 - STUDY REPORT

Prepared for:

Department of Indian Affairs
and Northern Development
Ottawa, Ontario

Prepared by:

Interdisciplinary Systems Ltd.
Winnipeg, Manitoba

ACKNOWLEDGEMENTS

Many people from government, industry, and commerce have provided information necessary for the preparation of this report. We express appreciation and thanks to them all. We particularly acknowledge Baker Lake study advisory committee members Louis Tapatai, Peter Kaluraqu, William Anautalik, Moses Nagyugalik, Francis Kaluraq, and Jonah Amitnaaq who reviewed the key points and conclusions of the study in its later stages. Joan Scottie gave invaluable assistance throughout the study as local coordinator, and Basil Aptaniq and Edwin Eveo served as interpreters during the interviews. Finally, we thank all the people of Baker Lake who provided us with information and guidance. The authors, nonetheless, assume all responsibility for interpretations of data and conclusions presented in this report.

CONTRIBUTORS

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EXECUTIVE SUMMARY

Since 1969, Baker Lake residents have expressed concern about the effects of mineral exploration activities on renewable resources, particularly caribou, sustaining their community. Responding to these concerns, the Minister of Indian and Northern Affairs in March 1977 issued a temporary "halt" on land-use activities in a 78,000 km^2 (30,000 mi^2) area around Baker Lake and announced that a study into the potential effects of exploration activities in the area would be undertaken.

This report presents the results of that study. It examines renewable resource harvest, biological characteristics of fish and wildlife species supporting this harvest, industrial exploration and development, and potential impacts of industrial activities on harvested species. It also identifies areas regarded as critical for maintaining traditionally harvested populations and presents recommendations on special controls or prohibitions for industrial activities in each critical area.

Renewable Resource Harvest

Data collected through interviews with 43 randomly selected Baker Lake heads of household reveal that caribou hunters currently use at least 80 percent of the study area and fox trappers at least 45 percent. Domestic fishing is a wide-ranging activity, occurring throughout the study area, whereas wildfowl hunting is mostly confined to areas close to the hamlet. Land-use patterns appear not to have changed much in recent years. Recent changes that we have identified relate primarily to changes in animal distribution and behaviour (e.g. caribou wintering areas and migration routes) and to the movement of people from camps into Baker Lake.

Harvest occurs through the year. Early and late winter and summer appear to be the most important times for caribou hunting, early and late winter for fox trapping, and spring and early winter for fishing. Geese and ducks are hunted in late spring and early summer and most ptarmigan are taken in fall.

Through data collected during study interviews, we estimate the current caribou harvest at 4100, the current wildfowl harvest at 400 geese and 2800 ptarmigan, and the current consumption of fish at 140,000 lbs (65,000 kg). We also estimate the current arctic fox harvest at 790, based on NWT Government Fish and Wildlife Service fur records.

The total value of this harvest, including cash income from sales of furs and replacement cost (imputed income) of country food, is just over $1 million. This represents an income of about $6400 for each Inuit family in Baker Lake. Approximately two-thirds of this value is derived from consumption of caribou meat. We estimate that the replacement cost of this red meat alone is $683,000, or $4350 per family.

Various strategies for enhancing benefits of renewable resource harvest were examined. The feasibility of relocating the fish cannery from Rankin Inlet to Baker Lake was considered. We concluded that this would be an inefficient allocation of funds since the costs of production greatly exceed the market value of the product. An alternative worthy of further examination would be the development of a tourist sport fishery based in Baker Lake. We examined recently initiated trappers assistance programs, including the Outpost Camp Program, trappers' assistance loans, trappers' incentive grants, and the Fur Marketing Service. We concluded that these programs were adequate but that communication with trappers and program implementation could be improved. We also briefly outlined a scheme to purchase caribou hides and manufacture quality handcrafted leather goods. We consider such an enterprise worthy of further examination.

Biological Characteristics of Harvested Species

Barren-ground caribou occur throughout most of the study area. Spring migration, calving, post-calving aggregations, summer movements, and fall migration all occur there. Some caribou may rut within the study area and variable numbers winter there in different years. These caribou belong primarily to the Beverly and Kaminuriak populations. Recent estimates of these populations are 124,000 and 41,000, respectively.

Arctic foxes are permanent residents of the study area. They have large home ranges much of the year but are restricted to more specific areas during the denning period. There appears to be an abundance of suitable denning habitat in much of the study area.

Productivity of waters in the study area is low, resulting in slow fish growth rates. The standing crop of fish in unexploited waters is usually large, but local populations are readily susceptible to overharvest. Fourteen species of fish are reported to occur within the study area; of these only lake trout, arctic char, lake whitefish, and lake cisco are currently important for domestic or commercial harvest.

Several species of waterfowl nest and moult in the study area. The most common of these are Canada, lesser snow, and white-fronted geese and oldsquaw ducks. Many species occur extensively throughout the region but no extremely large aggregations of waterfowl are known to occur anywhere in the study area.

Industrial Land Use

Mineral exploration, primarily for uranium, has been the most widespread industrial land-use activity in the study area and the major focus of local concern. A great deal of interest was first shown in the area in 1969, when prospecting permits were issued for about one-third of the study area. To date, exploration activity has not proceeded beyond a preliminary level over much of the area. The most intensive activity has been diamond drilling on claims near Kazan Falls.

In December 1977, Polar Gas made initial filings to the National Energy Board pursuant to an application to construct a pipeline to transport natural gas from the Arctic Islands to southern markets. The proposed routing crosses the study area west of Baker Lake.

Facilities and activities associated with mineral exploration and development (uranium) and natural gas pipeline construction and operation are regarded as the most likely sources of industrial impact in the study area.

Caribou Critical Areas

Four types of critical areas were identified for caribou: major migration corridors to calving grounds, calving grounds, areas where post-calving aggregations and movements occur, and important water crossings.

The major concerns identified for migration corridors, calving grounds, and areas used for post-calving aggregations and movements are similar. They include: development of roads or other facilities which could impede movements of caribou to, on, or from calving grounds and post-calving areas; low-flying aircraft; intensive human or construction activity; heavy traffic; and habitat destruction due to emissions of sulphur oxides. Specific favoured calving areas could also be occupied by industrial facilities.

Recommended controls to mitigate these concerns include restrictions on the location of facilities and facility design, regulation of aircraft overflight altitudes, timing of activities, and possible outright prohibition of industrial facilities in certain favoured calving sites.

Major concerns and recommendations regarding important caribou water-crossing sites are similar to those outlined above, with one major exception. We recommend that no permanent above-ground developments involving noise, human presence, visual or physical impediments to caribou movement, or habitat destruction be permitted within 4.8 km (3 mi) of important water crossings. Further, we recommend that temporary exploration and development activities not be allowed within 4.8 km (3 mi) of these crossings. If such activities must be located within this "prohibited zone", we recommend that all activities be shut down and all readily removable facilities and non-essential manpower be withdrawn when caribou are in the area.

Fish Critical Areas

Four general areas have been identified as critical for fish: Baker Lake and its tributary rivers; large lakes currently important for domestic fishing (Pitz, Schultz, and Whitehills Lakes); smaller lakes throughout the study area inhabited by lake trout; and Quoich River. We believe that fish populations in these waterbodies are vulnerable to either direct or indirect impact from industrial activities. Further, they either support domestic harvest or serve as habitat for fish species favoured by Baker Lake residents (lake trout, arctic char, and lake whitefish).

Major concerns relative to industrial activities in these areas are siltation, toxic spills, accumulation of toxic substances, acidification, habitat destruction, blockage of flow and dewatering, and overharvest. Recommended controls to mitigate these concerns include restrictions on the location of rights-of-way and facilities and on construction design; contingency plans for containment and cleanup of spills; enforcement of emission standards for sulphur oxides; restrictions on the location of borrow operations; and enforcement of existing fishing regulations or development of special restrictions if necessary.

Arctic Fox Critical Areas

No critical areas have been identified for arctic fox. The only concern relative to industrial activities is destruction of dens and denning habitat due to borrow activities. Destruction of dens can be prevented, however, by conducting surveys of borrow sites prior to extraction and avoiding actual den sites during borrow operations. Destruction of scarce denning habitat is unlikely as there appear to be ample supplies of gravel in much of the study area.

Waterfowl Critical Areas

Two critical waterfowl areas were identified: the south shore of Baker Lake and an area around and northeast of Pitz Lake, and the islands area between Beverly and Aberdeen Lakes. The former area is a snow goose nesting and moulting area as well as the area where most goose hunting by Baker Lake residents occurs. The latter area is a moulting area for an estimated 10,000 large-race Canada geese.

Major concerns relative to industrial activities in the two areas relate to destruction of nesting and moulting habitat by borrow activities and facilities construction, excessive disturbance of nesting and moulting geese by human and industrial activities and low aircraft overflights, and fuel and chemical spills in areas where nesting or moulting waterfowl are concentrated. Controls recommended for both areas include restrictions on the location of facilities, regulation of aircraft overflight altitudes, timing of activities, and contingency plans for containment and cleanup of fuel and chemical spills.

Land Use Regulations - General Considerations

In recommending controls to protect fish and wildlife species, we encountered significant data gaps with respect to the biological characteristics of harvested species and the behavioural responses of these species to various industrial activities. To remedy these data gaps, we recommend that a program of intensive monitoring be undertaken whenever long-term activities identified as having potentially adverse impacts on fish and wildlife species supporting harvest are permitted in any area identified as critical. The resulting data would then be applicable to subsequent industrial activities.

Most controls that we have recommended can be implemented within the existing regulatory framework. Exceptions are aircraft operation and exploratory activities, which due to their scale, duration, or character, do not require land-use permits.

With respect to aircraft operation, we recommend that areas identified as caribou calving grounds, post-calving areas, or water-crossing sites and possibly other sensitive wildlife areas should be designated by Territorial Ordinance as areas where aircraft operation is restricted during critical periods. We further recommend that aircraft activities within critical areas be monitored to ensure satisfactory compliance, that land-use permits could be withdrawn as a punitive measure, and that industry incorporate penalty clauses into contracts with companies supplying air support services.

With respect to exploratory activities that do not require land-use permits, we recommend that holders of mineral prospecting permits be required to advise communities of details regarding all proposed field activities and that subsequent programs be tailored with community concerns in mind. We also recommend consultation between the mining industry, government, NWT residents, and other affected parties to amend the regulatory framework under which mineral exploration activities are undertaken. Finally, while we recognize that development activities arising out of a successful exploration program are subject to control under the Federal Environmental Assessment and Review Process, we recommend that the public hearing phase of that process be extensive and be undertaken at a time when local residents most affected are best able to participate.

To overcome problems in the process by which land-use permit applications are reviewed with local communities and to make community review of those applications more meaningful, the present system for permit application and community review requires modification. We recommend that regular review periods be scheduled to ensure that communities are given a realistic opportunity to review and comment on land-use permit applications. During these review periods, a representative of DIAND should be present in the community to meet with the community council, Hunters and Trappers Association, or other groups. We further recommend that information on permit applications submitted to communities should be comprehensive.

COMMENTS OF THE ADVISORY COMMITTEE

On 4 and 6 February 1978, Interdisciplinary Systems Ltd. staff met with the study advisory committee of Louis Tapatai, Peter Kaluraq, William Anautalik, Moses Nagyugalik, Francis Kalurag, and Jonah Amitnaaq to review the draft final report. During these meetings discussion focussed mainly on those areas identified as critical and on controls recommended to mitigate adverse environmental impacts. A number of comments and concerns were expressed by advisory committee members at these meetings, and are summarized below:

The point was made that caribou and fish are more important to people of Baker Lake than to people in coastal communities who can rely on seals for food. The advisory committee also noted that when caribou are scarce, Baker Lake people depend more on meat purchased from the Bay.

The committee pointed out that caribou follow different migration routes in different years, and that hunting areas must vary because of these yearly changes in distribution of the herds. The sensitivity of caribou to disturbance at water crossings was reiterated, and concern expressed about industrial activities in these areas. The difficulty of enforcing such controls as minimum altitudes for aircraft overflights not only at water crossings but throughout the area was recognized.

It was the feeling of the advisory committee that many other lakes are as important for fish harvest to some people as the large lakes identified as critical areas. They thought the same controls recommended for the latter should be applied to the former as well. They expressed concern about wastage of fish caught by sport-fishing workers at exploration camps, but again the difficulty of control was recognized.

In relation to fish harvest estimates, they mentioned their difficulty in estimating how much of the harvest is consumed by people and how much is used for dog food.

The advisory committee favoured use of local monitors used to help enforce fishing regulations and minimum altitudes of aircraft overflights. They perceived difficulties because of the language difference between monitors and industrial workers.

Finally, they made special note of the need to control industrial activity outside study area boundaries as well as within. They emphasized that caribou harvested by Baker Lake hunters rely on an area much larger than that encompassed by the study area, making it essential that recommended controls be applied throughout their entire range.

BACKGROUND INFORMATION

SUMMARY OF PRINCIPAL EVENTS

1. Since 1969, Baker Lake residents have expressed concern about the effects of mineral exploration activities on renewable resources, particularly caribou, sustaining their community.
2. In April 1974, the community formally objected to mineral exploration via a petition to the federal and territorial governments.
3. In June 1975, Inuit Tapirisat of Canada, the Eskimo Brotherhood, presented a Baker Lake land freeze proposal to the federal government.
4. In August 1975, the then Minister, Mr. Buchanan, rejected the land freeze proposal on the basis that operations, properly controlled under the Territorial Land Use Regulations (TLUR), could proceed without excessive environmental damage.
5. From 1971 to 1975, limited environmental controls were imposed under the general provisions of the TLUR.
6. In November 1975, the federal government, by Order-in-Council, established a Land Management Zone in the Eastern Arctic and thus required operators to obtain Land Use Permits for work in this area.
7. In March 1977, the Territorial Land Use Regulations were revised. All but minor uses of land became subject to Land Use Permits.
8. In April 1977, because of increasing exploration activities, the Minister (Mr. Allmand) imposed a one-year suspension on the issuance of mineral rights and land use permits in an area near Baker Lake. During the year, a consultant study was undertaken to examine effects of increased exploration activity on renewable resources there.
9. The suspension was extended to April 24, 1978, to enable full assessment of the study report findings, and to facilitate a legal action brought before the Federal Court by the Hamlet of Baker Lake et al relating to environmental protection in the study area.
10. On April 24, 1978, Mr. Justice Patrick Mahoney ordered an interim injunction on the issuance of prospecting permits and land use permits in the study area unless such permits are subject to various restrictions stated in the order

BACKGROUND INFORMATION

BAKER LAKE REGION PROTECTIVE MEASURES

New measures to ensure protection of wildlife in the Baker Lake region from possible adverse effects of land use activities will include the establishment of special Land Management Zones encompassing wildlife areas critical for caribou and setting out of specific measures and controls by regulation which operators will have to follow in these zones.

The new measures will include:

1. Establishment of a Land Management Zone, under the Territorial Lands Act, covering the critical use areas of each of the Kaminuriak and Beverly Caribou Herds North of 60°.

2. Implementation of special regulations for each Land Management Zone, incorporating the recommendations of the consultant study report of Interdisciplinary Systems Limited. The regulations will include restrictions on land use in areas critical to wildlife, when these areas are occupied by wildlife:

- caribou spring migration routes	May 15 - June 30
- caribou calving grounds	May 15 - June 30
- caribou post calving aggregation areas	June 30 - July 31
- caribou waterbody crossings	All year round
- wildfowl nesting and moulting areas	June 15 - August 15

   Land use activities within spring migration areas may be allowed, once the main portion of the herd has passed beyond the proposed site of activity, and on the advice of a wildlife biologist engaged in monitoring herd movements.

3. The withdrawal from further disposition of land adjacent to known river and lake caribou crossing sites.

4. Aerial surveys, in collaboration with the Government of the Northwest Territories, of the Kaminuriak and Beverly Herds, to monitor herd movements for the purpose of ensuring land use activities do not interfere with the herds, and to enable better definition of the boundaries of caribou critical areas.

5. Transport Canada air regulation requirements that all aircraft maintain an altitude of not less than 300 m above the caribou herds during migration and 600 m above water crossing points, calving grounds and post calving aggregations. Directives to pilots are made through the regular civil aeronautics system.

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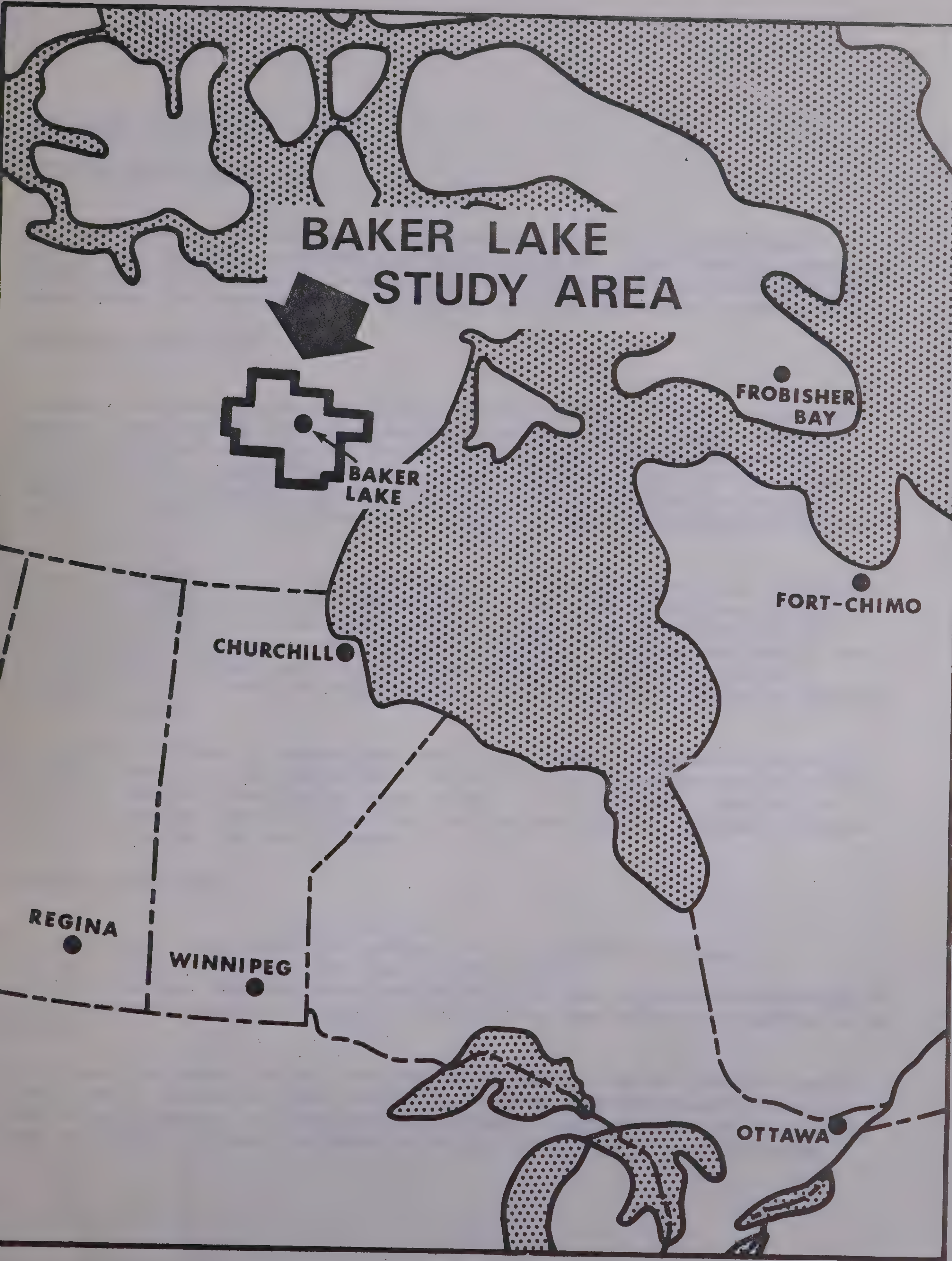
Transport Canada air radio operators at Baker Lake, and other airports used by aircraft flying over the herd ranges, will be informed of these flying restrictions, which will also be brought to public attention via the northern news media. In addition, all operators issued Land Use Permits under the Territorial Land Use Regulations will be informed of flying restrictions.

6. Proposals to the people of Baker Lake that they become actively involved in regulating land use in the new Land Management Zones, through meetings in the community at which mining companies can explain their proposed activities, through participation in an Advisory Committee set up to assist the Department in regulating land use, and through participation, with government biologists, in caribou herd aerial surveys.

Because measures 1, 2 and 3 will require several months to complete, by Orders-in-Council, the restrictions on land use will be applied immediately, for the 1978 summer mineral exploration season, by special terms and conditions placed in Land Use Permits issued under the Territorial Land Use Regulations. These special terms and conditions will ensure the environmental conditions set out in the policy of the Department, and corroborated by the Federal Court Order, are implemented not only for the Baker Lake Study Area, but for all the critical range of the Beverly and Kaminuriak Caribou Herds.


BAKER LAKE STUDY AREA
BAKER LAKE
FROBISHER BAY
FORT-CHIMO
CHURCHILL
REGINA
WINNIPEG
OTTAWA

BACKGROUND INFORMATION

KEEWATIN CARIBOU HERDS

There are two major caribou herds in the Keewatin District of the Northwest Territories, the Kaminuriak Herd and the Beverly Herd. Traditionally, these herds winter south of the treeline in the southern Keewatin and northern Manitoba and Saskatchewan, and travel north to the Baker Lake area and beyond during summer.

KAMINURIAK CARIBOU HERD

Northwest Territories fish and wildlife officers in Keewatin have suspected for several years that the Kaminuriak caribou herd was declining because hunters, wolves and natural mortality factors were killing more animals that were being recruited into the population each year, but reliable surveys were not available. During the past two years, improved surveys have confirmed that the herd has declined to 44,000 in 1977, from 63,000 animals in 1968, an average rate of about 5% per year.

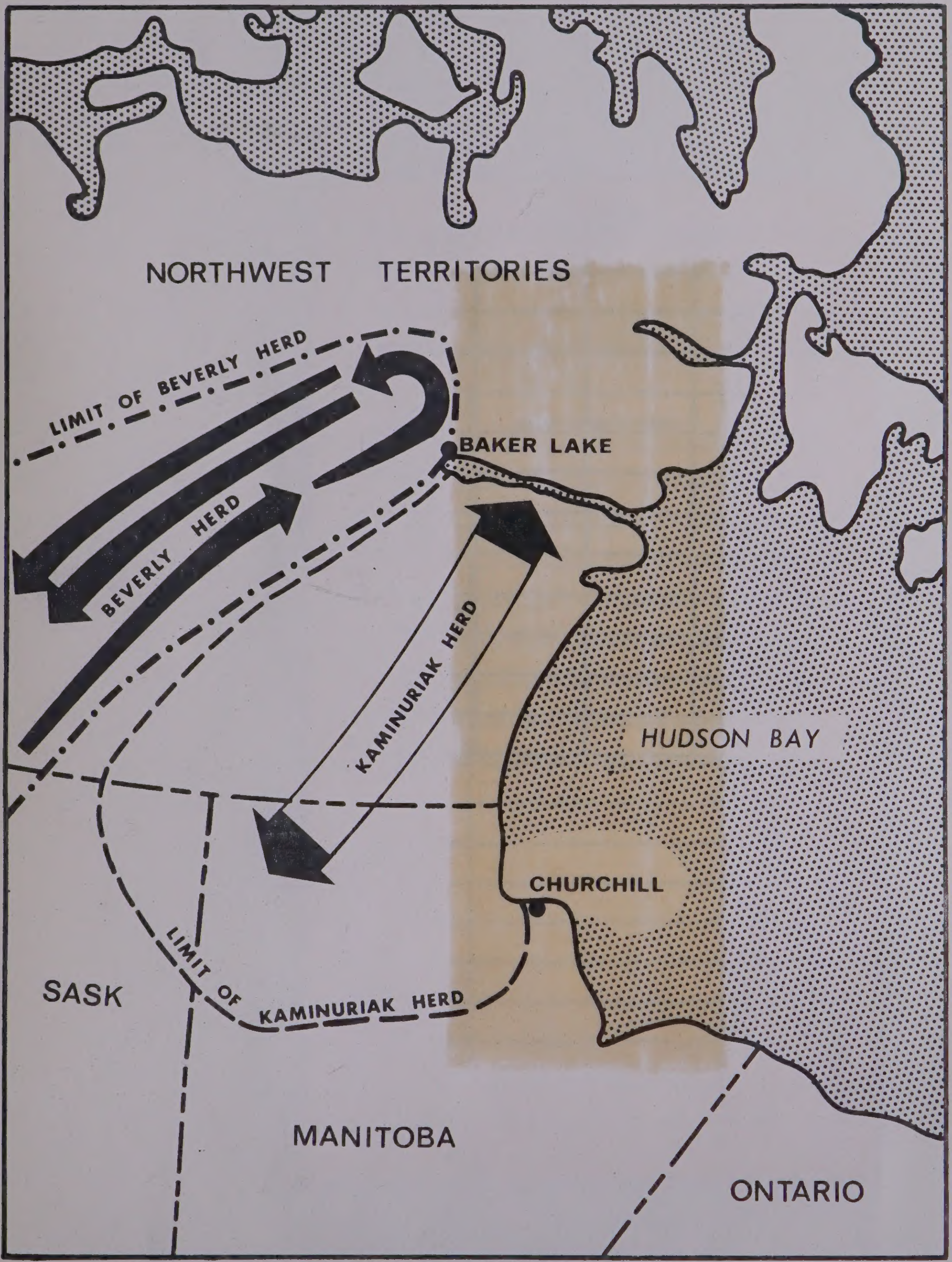
The herd is declining at a rate approximating the rate of human kill. This means that natural mortality and wolf predation is equal to the rate of recruitment to the herd. Unless natural mortality and/or wolf predation is reduced, the herd cannot support any human harvest without declining. If hunting continues at the present rate of approximately 3,000 - 4,000 animals per year the herd will continue to decline until, within 10 years, it is no longer economically important to native hunters.

As the herd declines, it ranges over smaller and smaller areas thus eliminating hunting by more and more communities. Already the native communities in Manitoba have been deprived of caribou in three of the last four winters. Despite the population decline, the Kaminuriak herd has continued to use essentially the same calving ground for the past 10 years.

BEVERLY CARIBOU HERD

The three most recent population estimates for the Beverly herd were:
139,000 in 1967; 164,000 in 1971, and 124,000 in 1974.
The later estimate was considered unreliable by the game officers who conducted it. A calving ground population survey is scheduled for June 1978 using improved survey methods.

Recruitment estimates for this herd have varied between 10% and 20% which makes prediction of population trends difficult. However, sex-age classifications carried out in March, 1978 indicated recruitment of approximately 20% during the past two years. If these estimates are valid, the herd should be increasing.



Generalized range and seasonal movements of Kaminuriak and Beverly caribou herds. Yearly variations depend upon weather, snow depth, range conditions, etc.

Date Due

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AUTHOR

Notes for a speech...April 27/78

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Pam: 042 [Faulkner,J.H.] 27/4/78

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